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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,065	05/29/2007	Toru Takahashi	SHIGA7.050APC	3534

20995 7590 03/25/2010  
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EXAMINER
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HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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03/25/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/580,065	<b>Applicant(s)</b> TAKAHASHI ET AL.	
	<b>Examiner</b> Cynthia Hamilton	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 3-4 is/are allowed.
- 6) ☒ Claim(s) 2 and 5-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

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**DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 1, 2010 has been entered.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 and 5 -10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 2, lines 16-20 is found the following:

[wherein R<sup>6</sup> and R<sup>7</sup> each represents an alkyl group having 1 to 3 carbon atoms, or a combination of the compound (VIII) and a bis(trichloromethyl)triazine compound represented by the following formula (IX):



wherein Z represents a 4-alkoxyphenyl group].

. In line 5 of claim 2 is found the following:

wherein (B) represented by the following general formulas (V), (VI), (VIII) or (X):

. It is unclear what (B) is with respect to lines 16-20 when considering line 5. Does the formula (IX) reference some how what R<sup>6</sup> and R<sup>7</sup> can be or does the combination of compound (VIII) and (IX) represent a different limit for when using (VIII) than set forth in line 5? Does this

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indicate that only these compounds singly used or in the one combination given are the total limit of (B)? The choices for (B) need to be more clearly set forth to remove this confusion. Claims 2 and 5- 10 are found indefinite for this reason.

4. Claims 2, 5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meier et al (4,994,346) further in view of Ciba (Photoinitiator) further in view of Bonham et al (US 3,954,475) and Kobayashi et al (JP 07-134412 A and attached translation).

. With respect to instant claims 2, 5 and 9-10, Meier et al teaches the instant compositions with the exception of setting forth an explicit working example wherein both a polyfunctional epoxy resin and a polyfunctional vinyl ether compound is present with the solid film forming polyphenol and the cationic photoinitiator and with the exception of using them for a different intended purpose, i.e. negative photoresist imaging and without disclosing the instant compound generating an acid under irradiation with radiation as now amended in claim 2. However, the choice of one from three members set forth by Meier of the Markush group consisting of polyfunctional epoxy resin, polyfunctional vinyl ether compound and mixtures thereof would have been prima facie obvious in view of only three selections being present. As to the choice of cationic photoinitiator, Meier et al at column 9, lines 15-17, and lines 58 to column 11, line 25, teach those of use are those which act to polymerize epoxy and vinyl ether groups. Cationic photoinitiators are those which produce an acid as recognized by Ciba thus make obvious the instant compositions, methods and cured products of instant claims 2, 5 and 9-10. The cationic initiator is inclusive of acid generators as shown in col. 9-column 11, lines 23, are inclusive of the acid generators such as those set forth by Bonham et al in Table 1, fifth compound which is generally disclosed at column 8 lines 50-68 as acid generator which is

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has an absorption maximum at 394 nm and disclosed by Kobayashi et al as a photoacid generator.

5. Claims 2, 5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudsen et al (5,262,280) further in view of Bonham et al (US 3,954,475) and Kobayashi et al (JP 07-134412 A and attached translation). Knudsen et al teaches compositions comprised of phenolic resin binders and epoxidized polybutadiene and divinylether and photoacid generators. Divinylethers are possible crosslinkers . There is no explicit example with these components present. In Knudsen et al , see particularly column 2, lines 38-column 5, lines 61, col. 9, lines 54-59, column 11, lines 18-30, column 14, lines 17-column 15, lines 68. With respect to instant claims 2, 5 and 9-10, the use of the divinyl ethers as crosslinkers in the compositions of Knudsen et al would have been prima facie obvious as the simple substitution of one known element for another to obtain predictable results in the methods set forth by Knudsen et al to form negative resist patterns in to objects with substantial flexibility. The use of known photoacid generators to act in a known manner to generate acid in exchange for such acid generators in Knudsen et al would have been the prima facie obvious substitution of one known photoacid generator for another to perform the expected task of acid generation. Such known photoinitiators include those of Kobayashi et al and Bonham et al in Table 1, fifth compound which is generally disclosed at column 8 lines 50-68 as acid generator which is has an absorption maximum at 394 nm and disclosed by Kobayashi et al as a photoacid generator..

6. Claims 1 and 3-4 are allowed.

7. Applicant's arguments filed March 1, 2010 have been fully considered but they are not persuasive. The examiner agrees that Meier et al nor Knudsen et al disclose the instant photoacid

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generators but art has been added to the rejections to show the obviousness of using such in view of the confusion as to what is actually being claimed as photoacid generator in the claims now presented. The examiner does agree that not all choices of photoacid generator were found obvious to use by this examiner. Applicants then argue that because the resist layers of the prior art do not degrade and become developable in alkali soluble solution that the compositions of Meier et al or Knudsen et al cannot read on the instant invention. Only instant claim 7 requires such developability in alkali soluble solution. The invention of claims 2, 5 and 9-10 do not require such properties in their compositions. Thus, the arguments are not commensurate in scope with the invention claimed. The rejection stands for reasons of record for this reason and in view of the newly added art.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sigma-Aldrich list of Cationic photoinitiators is added to the record to make clear that cationic photoinitiators are not required to have a cation only to generate one as indicated by 53111.

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331.*

*The examiner can normally be reached on Monday through Friday 8:30 am to 5:00 pm.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.*

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*Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.*

/Cynthia Hamilton/  
Primary Examiner, Art Unit 1795

March 22, 2010